

## **REMARKS**

Applicants respectfully request reconsideration and reexamination of the present application in light of the foregoing amendments and following remarks. The amendments are made solely to expedite prosecution, and Applicants do not thereby concede or imply that any aspect of the grounds for any rejection are proper. The amendments thus are without disclaimer and without prejudice to Applicants' rights to pursue any canceled subject matter in this application or in a continuing application.

### **1. Status of the Claims**

The status of the claims following entry of the amendment is as follows:

**Claims canceled:** Claims 2-50

**Claims pending:** Claim 1

**Claims allowed:** None

**Claims rejected:** Claim 1

**Claims withdrawn:** None

### **2. Support for the Amendments**

Claim 1 is amended without prejudice or disclaimer to clarify the nature of the claimed subject matter. Support for a "protein" encoded by an *S. cerevisiae* strain S288C gene is found throughout the specification, e.g., p. 10, line 28, through p. 11, line 5. The other amendments to claim merely correct a typographical error and introduce a definite article. The amendments thus do not add impermissible new matter.

### **3. Acknowledgement of Drawings**

Applicants note with appreciation the indication that the drawings submitted July 20, 2006, are deemed acceptable by the Examiner.

### **4. Acknowledgement of a Claim to Foreign Priority**

The Office already acknowledged the claim to foreign priority in the Office Action mailed February 23, 2006.

**5. Rejection under 35 U.S.C. § 112, Second Paragraph**

Claims 1 and 8 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite on four separate grounds.

**[A]**

The Office alleges that claim 1 is indefinite as “incomplete,” because [1] the recitation of “*S. cerevisiae* strain S288C genome” constitutes an “incorporation by reference” that is “needed to understand the claims.” The Office then alleges [2] that the purported incorporation by reference is improper, because it is not part of a disclosure from an allowed U.S. application, U.S. published application, or U.S. patent. The Office further alleges [3] that the recitation is improper, because “the content of a given website may change over time.”

**[1]**

Applicants traverse all three grounds for the present rejection. First, the recitation “an *S. cerevisiae* strain S228C gene” is not an incorporation by reference. The Office’s own regulations require an incorporation to express *in the specification* “a clear intent to incorporate by reference by *using the root words ‘incorporat(e)’ and ‘reference.’*” 37 C.F.R. § 1.57(b); *see also In re De Seversky*, 177 U.S.P.Q. 144, 147 (C.C.P.A. 1973) (incorporation by reference requires incorporating the material into the specification in such a manner that it is apparent that the cited document is part of the referencing disclosure). Neither root word required under Rule 57(b) appears in the specification in this context, so incorporation by reference is wholly irrelevant.

Improperly alleging incorporation by reference departs from established precedent set forth in *De Seversky*, 177 U.S.P.Q. at 147, and from established procedure set forth at 37 C.F.R. § 1.57(b), for example. Yet, the Office provides no explanation whatsoever for applying a procedural requirement that clearly has no place in the present context. As in the present case, when a government agency interprets its governing case law or regulations in a manner either contrary to precedential law or to established procedure, the agency’s action is found arbitrary and capricious. *See Groz v. Quigg*, 10 U.S.P.Q.2d 1787, 1789 (D.D.C. 1988); *Garrett v. Fed.*

*Communications Comm'n*, 513 F.2d 1056, 1060 (D.C. Cir. 1975); *see also Graphic Communications Int'l Union, Local 554 v. Salem-Gravure Div. World Color Press, Inc.*, 843 F.2d 1490, 1493 (D.C. Cir. 1988) (agency decisions that depart from established precedent without a reasoned explanation or that fail to cite any statutory or decisional authority for its assumptions will be vacated as arbitrary and capricious). For at least these reasons, the rejection is improper and should be withdrawn.

[2]

In any event, the Office provides no reason or evidence that the recitation “an *S. cerevisiae* strain S288C gene” does not comply with 35 U.S.C. § 112, second paragraph. The Office’s allegation that the recitation is an incorporation by reference is irrelevant for the reason set forth above. The Office further alleges that the expression is “needed to understand the claims.” The bare fact that a recitation is needed to understand the claims provides no reason or evidence *why* the recitation does not comply with 35 U.S.C. § 112, second paragraph. Arguably, all recitations in a claim are needed to understand the claim. Because the Office has not made a proper *prima facie* case of indefiniteness, the rejection is improper and should be withdrawn.

[3]

Finally, Applicants do not understand why the Office alleges that Applicants refer to “an *S. cerevisiae* strain S288C gene” by way of a website. Applicants referred to a website at page 10 in their response as evidence of what already was known in the art. The Office has not explained, however, what possible relevance this can have to clarity of the claims, the sufficiency of the disclosure, or anything else. The Office at a minimum should distinctly point out a website in the specification that allegedly refers to *S. cerevisiae* strain S288C.

In any event, whether the contents of a website or any other type of supporting disclosure may change over time is wholly irrelevant to the issue of compliance with 35 U.S.C. § 112, second paragraph. It is well established that “§ 112 speaks as of the application filing date, not as of the time of trial.” *See W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1556-57, 220 U.S.P.Q. 303 (Fed. Cir. 1983) *cert. denied*, 469 U.S. 851 (1984) (holding that post-filing formulae for defining “stretch rate” were irrelevant and could not be used to render indefinite

that which was definite at the time the application was filed). In this case, the artisan was aware at the time of filing precisely what is meant by “an *S. cerevisiae* strain S228C gene,” and the Office provides no contrary evidence. The recitation of “an *S. cerevisiae* strain S288C gene” is clear and definite, in compliance with 35 U.S.C. § 112, second paragraph. For all these reasons, this aspect of the rejection is improper and should be withdrawn.

[B]

The Office alleges that the expression “an amino acid sequence” is unclear, because the expression allegedly reads on a sequence of two or more amino acids. Without acquiescing to the propriety of the rejection, Applicants amend the claims without prejudice or disclaimer to delete the expression at issue, mooted the rejection.

[C]

Claims 1 and 8 are allegedly duplicative. The rejection is mooted by cancellation of claim 8 without prejudice or disclaimer.

[D]

The recitation “industrial yeast” in claim 8 is allegedly unclear. The rejection is mooted by cancellation of claim 8 without prejudice or disclaimer.

6. **Rejection under 35 U.S.C. § 112, First Paragraph, Written Description**

Claims 1 and 8 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. The Office purports to base the rejection on the allegation at the paragraph bridging pp. 3-4 of the Office Action mailed August 20, 2007, but the Office maintains the rejection for the new grounds of rejection set forth at p. 2, ¶ 3, of the present Office Action. Specifically, the Office newly alleges that *S. cerevisiae* strain S288C is presented in the specification but needed to understand the claims. The Office further alleges that reference to a website is improper incorporation by reference and that the contents of a website may change over time.

The Office questions the adequacy of the disclosure of “an *S. cerevisiae* strain S288C gene” under the written description requirement. The Federal Circuit held in *Falkner v. Inglis*, 79 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2006) (affirming the Board; parenthetical removed):

[Where] accessible literature sources clearly provided, as of the relevant date, genes and their nucleotide sequences, satisfaction of the written description requirement does not require either the recitation or incorporation by reference.

There is no question on the record that *S. cerevisiae* strain S288C genes were known in the art at the time of invention. Thus, no disclosure of these genes in the specification or incorporation by reference is required to comply with the written description requirement. *See Falkner*, 79 U.S.P.Q.2d at 1008. The claims thus comply with the written description requirement, and the rejection should be withdrawn.

The Office maintains the rejection over a misapplication of procedures relating to incorporation by reference. As set forth at Part 5[A][1], *supra*, the recitation “an *S. cerevisiae* strain S288C gene” is not an incorporation by reference. Maintaining the rejection under 35 U.S.C. § 112, first paragraph, on this basis alone runs counter to governing case law and regulations. As set forth above, the Office’s action for this reason is arbitrary and capricious. Accordingly, for this reason, too, the rejection is improper and should be withdrawn.

Applicants again do not understand what the Office is referring to where it says that reference is made to “an *S. cerevisiae* strain S288C gene” by way of a website. In any event, like compliance with 35 U.S.C. § 112, second paragraph, compliance with the written description requirement is determined at the time of filing. *See, e.g., LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1344-45, 76 U.S.P.Q.2d 1724 (Fed. Cir. 2005). Thus, whether the contents of a website or any other type of supporting disclosure may change over time is irrelevant to the issue of compliance with the written description of 35 U.S.C. § 112, first paragraph.

#### **7. Rejection under 35 U.S.C. § 112, First Paragraph, Enablement**

Claims 1 and 8 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. The Office alleges that the *S. cerevisiae* strain S288C must be permanently available to the public for the claims to be enabled.

Applicants traverse the rejection. Like compliance with the written description requirement, incorporation by reference of subject matter *already known in the art* is not required to comply with the enablement requirement. *See Falkner*, 79 U.S.P.Q.2d at 1008 (quoting *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1534, 3 U.S.P.Q.2d 1737 (Fed. Cir. 1987) (“[a] patent need not teach, and preferably omits, what is well known in the art.”)). Further, enablement, like definiteness and written description, is determined at the time of filing. *See, e.g., In re Hogan*, 559 F.2d 595, 604, 194 U.S.P.Q. 527 (C.C.P.A. 1977).

Whether a strain is “permanently available to the public” is relevant to biological deposits. *See generally* MPEP § 2402, *et seq.* The Office has not explained, however, why biological deposits are relevant in this case. Presumably, the Office alleges that a deposit of *S. cerevisiae* strain S288C is required. The Office’s own regulations explicitly state: “Biological material need not be deposited, *inter alia*, if it is known and readily available to the public.” 37 C.F.R. § 1.802(b). It is uncontroverted on the record that all the genes of *S. cerevisiae* strain S288C were commercially available at the time of filing. For this reason alone, a biological deposit of *S. cerevisiae* strain S288C is unnecessary. The requirements for biological deposits thus have no relevance to compliance with the enablement requirement of 35 U.S.C. § 112, first paragraph, in this case. The rejection thus is improper and should be withdrawn.

**8. Rejection under 35 U.S.C. § 103(a)**

Claims 1 and 8 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Olesen *et al.*, *FEMS Yeast Res.* 2: 563-73 (2002) (“Olesen”) in view of U.S. Published Application No. 2006/0228712 A1 (“Nakagawa”).

The Office alleges that the artisan would have compared beer yeast DNA sequences of Olesen to *S. cerevisiae* S288C gene sequences in the manner taught by Nakagawa to determine the function of the beer yeast sequences.

**Olesen**

Olesen teaches a genetic expression (i.e., “transcriptome”) analysis of a bottom fermenting (i.e., lager brewing) yeast during brewing. Olesen, p. 563, Abstract. The Office alleges that Olesen teaches comparing polynucleotide sequences of a beer yeast to genes of *S. cerevisiae*. The Office acknowledges that Olesen does not teach selecting a polynucleotide

sequence of the beer yeast encoding a protein having 70 to 97% identity to a protein encoded by an *S. cerevisiae* strain S288C gene, and determining the function of the selected beer yeast gene. In fact, Olesen discloses that “it is not possible at present” to distinguish between expression of genes derived from a *S. cerevisiae*-like parent and genes derived other parental species having only 75-85% identity to the *S. cerevisiae* genes. Olesen, paragraph bridging p. 563, 2<sup>nd</sup> col., and p. 564, 1<sup>st</sup> col.

### **Nakagawa**

Nakagawa teaches a method of obtaining the complete genome sequence of the bacteria *Corynebacterium glutamicum* to specify gene regions not previously identified, to determine the function of unknown genes and encoded amino acid sequences, and to obtain useful mutants relevant to metabolic regulatory mechanisms. *See, e.g.*, Nakagawa, ¶ 20. Nakagawa, for example, teaches determining the function of polypeptides encoded by open reading frames (ORFs) by using a BLAST sequence alignment algorithm to known protein sequences. *See* Nakagawa, ¶ 253. In Table 1, Nakagawa discloses sequence similarity between **3501** *C. glutamicum* ORFs and “homologous genes” from a large number, perhaps hundreds, of other species. For **two** ORFs, SEQ ID NO: 1745 and SEQ ID NO: 3203, Nakagawa reports that the *C. glutamicum* ORFs both encode a protein having 28.7% sequence identity to a protein encoded by “*S. cerevisiae* S288C YIR019C *sta1*.” *See* EXHIBIT 1.

### **Applicants’ Argument**

Applicants traverse the rejection for three reasons. (1) First, Olesen does not provide an enabling disclosure. (2) Second, the combination of references would not teach all the claim elements, even if there were motivation to combine the references at all. (3) Finally, the combined references at best suggest selecting a gene that hybridizes to any species from a vast genus. The combined references do not particularly point out or suggest selecting a polynucleotide sequence of the beer yeast with identity to a gene from the recited species of an *S. cerevisiae* strain S288C gene.

### **[1]**

It is well settled that references used to support an allegation of obviousness must be enabling. *In re Kumar*, 418 F.3d 1361, 1368 (Fed. Cir. 2005). In the present case, however,

Olesen states explicitly that "it is not possible at present" to distinguish between expression of genes derived from a *S. cerevisiae*-like parent and genes derived other parental species having only 75-85% identity to the *S. cerevisiae* genes. The Office relies on Olesen to suggest a method step that Olesen states was not possible before the date of the invention. The rejection thus is clearly improper and should be withdrawn.

[2]

It is equally well settled that the combined references must teach or suggest each and every element of the claimed subject matter. *See, e.g., In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). In the present case, however, even if there were a reason to combine Olesen and Nakagawa as the Office alleges, the combined references still would not have suggested all the elements of the claimed subject matter. Claim 1 recites in part:

selecting a polynucleotide sequence of the beer yeast encoding a protein having 70 to 97% identity to a protein encoded by an *S. cerevisiae* strain S288C gene;

Yet, the sequences shown in Nakagawa have less than 30% sequence identity to a protein encoded by an *S. cerevisiae* strain S288C gene. *See* EXHIBIT 1. Because the combined references do not even teach each and every claim limitation, the rejection is improper and should be withdrawn for this reason, too.

[3]

Finally, it is also well established that a disclosure of a large genus containing a particular species does not, without more, render obvious particular species within the disclosed genus. *See In re Jones*, 958 F.2d 347, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992); *see also* MPEP § 2144.08. In the present case, comparing sequences "in the manner taught by Nakagawa," as the Office alleges, would entail comparing ORFs to gene sequences from a wide variety, perhaps hundreds, of species. Yet, Nakagawa discloses no preference to select *S. cerevisiae* S288C from this multitude of species. In fact, out of 3501 comparisons, Nakagawa compares only two bacterial sequences (SEQ ID NOS: 1745 and 3203) to a *S. cerevisiae* S288C gene sequence. *See* EXHIBIT 1. For this reason, the proposed combination of references does not suggest the claimed subject matter with the particularity required to make a *prime facie* case of obviousness.



Because the no proper *prima facie* case is established, the rejection is improper for this reason, too. The rejection accordingly should be withdrawn.

For all the reasons set forth above, the rejection is improper and should be withdrawn.

### CONCLUSION

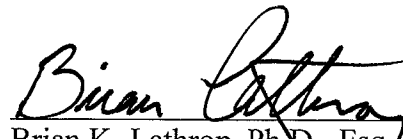
In view of the foregoing, Applicants respectfully request the entry of the amendments to place the application in condition for allowance, or in the alternative, in better form for appeal.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0573. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is respectfully requested and the fee should also be charged to our Deposit Account.

If any matters remain outstanding, the Examiner is invited to contact the undersigned representative regarding this matter.

Respectfully submitted,

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